

Dimension 3100 Scanning Probe Microscope

Cornell Center for Materials Research (CCMR)

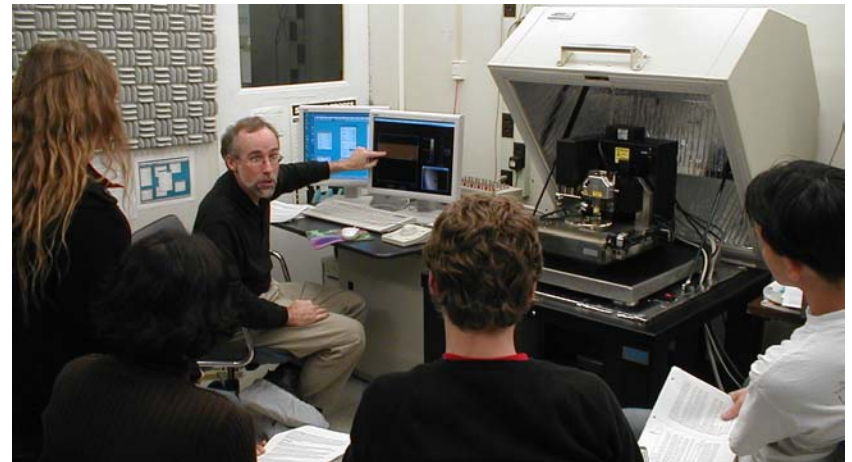
Cornell University, IMR 0216772

Research:

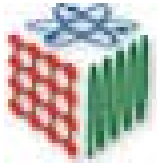
Over 60 users from 10 departments at Cornell use this microscope in ongoing research. This includes graduate students, post-doctoral associates, REU students, undergraduates, and visiting scientists.

Outreach:

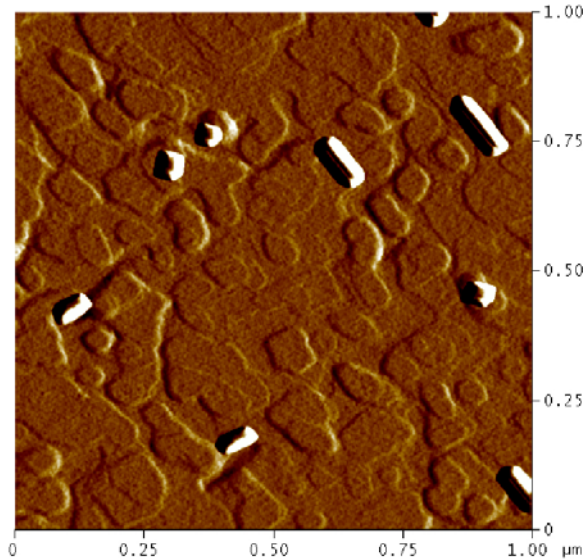
Since the arrival of the microscope, approximately 80 students and teachers from outside Cornell have used or seen the microscope in demonstration. This has been through the CCMR Research Experience for Teachers (RET) program, the Center for Nanoscale Systems (CNS) REU program, the CNS Institute for Physics Teachers program, and the MicroWorld program for K-12 students.



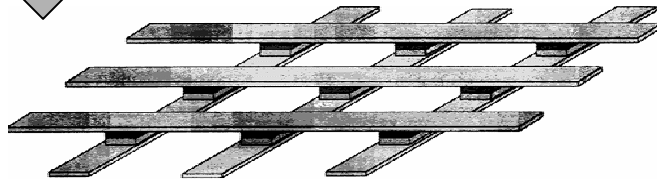
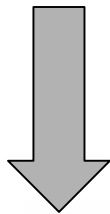
Professor Kit Umbach performing an atomic force microscope demonstration for graduate and undergraduate students in a Cornell Microcharacterization class (A&EP661). These students then used the AFM in a hands-on exercise to image carbon nanotubes on a silicon substrate.



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AFM (amplitude mode) image of $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ islands on a SrTiO_3 substrate. Growth mechanisms of magnetic materials are being studied for possible use in magnetic random access memory (MRAM) storage. MRAM offers the advantages of non-volatile memory, faster memory access and an unlimited number of write cycles.



MRAM cell array

